

Application No. 09/900,092  
Docket No. 15436.249.19.1  
Reply to Office Action mailed October 25, 2004

### AMENDMENTS TO THE CLAIMS

Please cancel claims 1-5 and 21, and amend claims 6, 9-13, 15 and 18-20. No new matter is believed to be introduced as a result of the foregoing amendments. The following listing of claims replaces all prior versions and listings of claims in this application.

1. - 5. (Canceled)

6. (Currently Amended) An optical isolator comprising:

a first stage configured to refract a light ray applied in a forward direction into a first ray and a second ray, the first stage having a first core including a first birefringent wedge with a first optical optic axis, and the first core also including a second birefringent wedge with a second optical optic axis that is different from the first optical optic axis; and

a second stage mechanically rotated about 90° with respect to said first stage and configured to refract said first and second rays in a substantially parallel manner, the second stage having a second core including a third birefringent wedge with a third optical optic axis that is rotated about 45° with respect to the optical optic axis of the first birefringent wedge, and the second core also including a fourth birefringent wedge with a fourth optical optic axis that is rotated about 45° with respect to the optical optic axis of the second birefringent wedge.

7. (Previously presented) The optical isolator of claim 6, wherein said first ray is an e-ray with respect to said first stage and is an o-ray with respect to said second stage, and said second ray is an o-ray with respect to said first stage and is an e-ray with respect to said second stage.

8. (Original) The optical isolator of claim 7 further configured such that said e- and o-ray exit from said second stage having orthogonal polarizations and separated by a walk-off distance, thereby forming a plane.

9. (Currently amended) The optical isolator of claim 8, wherein said first stage comprises a first Faraday rotator disposed between said first and second birefringent wedges having a polarization.

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plane rotation of about 45°, wherein the first ~~birefringent wedge is a birefringent wedge having~~ birefringent wedge has a first wedge angle and the second ~~birefringent wedge is a birefringent wedge having~~ birefringent wedge has a second wedge angle.

10. (Currently Amended) The optical isolator of claim 9, wherein said first and second wedge angles are substantially equal in magnitude.

11. (Currently Amended) The optical isolator of claim ~~10~~ 2, wherein said first Faraday rotator is configured to rotate the polarization of applied light by about 45°.

12. (Currently Amended) The optical isolator of claim 9, wherein said second stage comprises a second Faraday rotator disposed between said third and fourth birefringent wedges having polarization plane rotating angle of about 45°, ~~wherein the third wedge is a birefringent wedge and the fourth wedge is a birefringent wedge and~~ wherein the third ~~optical~~ optic axis of the third birefringent wedge is about 90 degrees apart from the second ~~optical~~ optic axis of the second birefringent wedge and the fourth ~~optical~~ optic axis is about 45 degrees apart from the third ~~optical~~ optic axis.

13. (Currently Amended) The optical isolator of claim 12, wherein said second Faraday rotator is configured to rotate the polarization of applied light by about 45°.

14. (Previously presented) The optical isolator of claim 13, wherein a rotation direction of said first and second Faraday rotators is at least one of a same and opposite direction.

15. (Currently Amended) An optical isolator comprising:  
first means for refracting a light ray applied in a forward direction into a first ray and a second ray, wherein the first means includes a first birefringent wedge and a second birefringent wedge, the first birefringent wedge having a first ~~optical~~ optic axis that is different from a second ~~optical~~ optic axis of the second birefringent wedge; and  
second means, mechanically rotated about 90° with respect to said first means, for refracting said first and second rays in a substantially parallel manner, wherein the second means includes a third birefringent wedge having a third ~~optical~~ optic axis that is rotated about 45° with

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respect to the first ~~optical~~ optic axis and a fourth birefringent wedge having a fourth ~~optical~~ optic axis that is rotated about  $45^\circ$  with respect to the second ~~optical~~ optic axis.

16. (Original) The optical isolator of claim 15, wherein said first ray is an e-ray with respect to said first means and is an o-ray with respect to said second means, and said second ray is the o-ray with respect to said first means and is the e-ray with respect to said second means.

17. (Original) The optical isolator of claim 16, wherein said e- and o-rays exit from said second means having orthogonal polarizations and separated by a walk-off distance, thereby forming a plane.

18. (Currently Amended) The optical isolator of claim 17, wherein said first means comprises a first rotator means disposed between said first and second birefringent wedges for rotating a polarization plane of applied light by about  $45^\circ$ , the first birefringent wedge having a first angle and the second birefringent wedge having a second angle.

19. (Currently Amended) The optical isolator of claim 18, wherein said first and second angles are substantially equal in magnitude.

20. (Currently Amended) The optical isolator of claim 18, wherein said second means comprises a second rotator means disposed between said third and fourth birefringent wedges for rotating a polarization plane of applied light by about  $45^\circ$ , wherein the third birefringent wedge has a third angle and the fourth birefringent wedge has a fourth angle.

21. (Canceled)